

REMARKS

This application has been reviewed in light of the Office Action dated July 9, 2003. Claims 17-24 are presented for examination. Claim 17 has been amended to define still more clearly what Applicants regard as their invention. Claim 17 is in independent form. Favorable reconsideration is requested.

Claims 17-24 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 26 of parent U.S. Patent No. 6,383,047 (Minami et al.) in view of European Patent Application EP 0 788 130 A2 (Yamanobe). Claims 17-19, 23 and 24 have been rejected under 35 U.S.C. 102(b) as being anticipated by Yamanobe. Claim 22 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanobe in view of European Patent Application EP 0 805 472 A1 (Mitome et al.).

As amended, independent Claim 17 recites:

“17. A method for manufacturing a cathode, comprising the steps of:
 (A) a step of forming a pair of electrodes on a substrate;
 (B) a step of forming a film so that the film connects the pair of
electrodes; and
 (C) a step of forming a gap at the film provided between the pair of
electrodes and of forming at least one of amorphous carbon and graphite at a portion of the
film facing the gap and in the vicinity of the gap by applying a voltage between the
electrodes,
 wherein step (B) comprises a step of forming a film comprising a
polymer, first and second portions of the film include at least one of amorphous carbon and
graphite, and the first and second portions of the film are adjacent the gap and oppose one
another on opposite sides of the gap.” (Emphasis added).

Claim 26 of Minami et al. recites:

“26. A method for manufacturing an electron source comprising an array of a plurality of cathodes, wherein said cathodes are manufactured according a method comprising the steps of:
A) a step for forming on a substrate an electroconductive film comprising:

at least one organic material selected from the following group: all-aromatic polymers, and polyacrylo nitrile;

and an electroconductive material; and

B) a step for forming a gap at a portion of said electroconductive film by applying an electrical current thereto, and

wherein said method for manufacturing said electron source comprises:

A) a step for forming an array of a plurality of pairs of electrodes on a substrate, using offset printing;

B) a step for forming a plurality of X-directional wires coming into common contact with one of said pair of electrodes, on said substrate using screen printing;

C) a step for forming a plurality of Y-directional wires coming into common contact with the other of said pair of electrodes, on said substrate using screen printing;

wherein said Y-directional wires are formed over said X-directional wires so as to be electrically insulated therefrom by an insulating layer formed using screen printing;

and wherein said Y-direction and said X-direction are generally perpendicular;

D) a step for positioning said electroconductive organic film so as to connect between each of said pairs of electrodes, using the ink-jet method; and

E) a step for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto, via said X-directional wires and said Y-directional wires.

Applicants respectfully submit that Claim 26 of Minami et al. does not recite or suggest a method for manufacturing a cathode, comprising forming a film comprising a polymer so that the film connects a pair of electrodes, and including the above-underlined features of Claim 17.

Yamanobe refers, at page 9, lines 18-58, to a process performed to polymerize and carbonize an organic substance (e.g., a thermosetting resin or an electron beam negative resist) and improve the electron-emitting performance of an electron-emitting device. A fissure composed of carbon film is formed within a fissure of an electroconductive film. Materials that can be used for the resin are described at page 9,

lines 29-38. However, Applicants respectfully submit that, while Yamanobe may be well-suited for its intended purpose, nothing in that reference would teach or suggest a method for manufacturing a cathode, comprising forming a film comprising a polymer so that the film connects a pair of electrodes, and including the above-underlined features of Claim 17.

Accordingly, for the foregoing reasons, Claim 17 is believed to be patentably distinguishable over Claim 26 of Minami et al. and Yamanobe.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against independent Claim 17 herein. That claim is therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office

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Respectfully submitted,



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